AMENDMENTS TO THE CLAIMS:

This listing of claims replaces all prior versions, and listings, of claims in this application.

1. (*Previously Presented*): An interferometer system for measuring displacement, along at least two directions within a three dimensional system of coordinates, of an object in a plane substantially parallel to a two dimensional plane, said interferometer system comprising:

a plane mirror interferometer system;

a differential plane mirror interferometer system;

a beam-splitter configured to split a radiation beam associated with said plane mirror interferometer system and a radiation beam associated with said differential plane mirror interferometer system into respective measuring beams and respective reference beams;

at least one measuring mirror fixedly connected to said object and comprising a plurality of measuring mirror areas;

at least one reference mirror comprising one or more reference mirror areas,

wherein, in use, a direction of propagation of the reference beam associated with the differential plane mirror interferometer system just before incidence on a reference mirror is in a direction substantially orthogonal to the direction of the reference beam associated with the plane mirror interferometer just before incidence on a reference mirror and away from the beam-splitter.

2. (*Previously Presented*): The interferometer system of claim 1, wherein said beam-splitter includes a transparent body having a beam-splitting surface and a first reflector which is integrally connected to said transparent body and which has a reflective surface that extends substantially parallel to the beam-splitting surface.

3. (*Currently Amended*): An interferometer system for measuring displacement along at least two directions in an XYZ system of co-ordinates, of an object in a plane substantially parallel to an XY plane, said interferometer system comprising:

at least one measuring mirror fixedly connected to said object and comprising a plurality of measuring mirror areas;

at least one reference mirror comprising one or more reference mirror areas;

a beam generator configured to generate a plurality of radiation beams, said beam generator comprising a beam-splitter block having a beam-splitting surface;

a plurality of radiation-sensitive detectors configured to convert radiation beams reflected towards said detectors into electric measuring signals;

wherein said <u>beam-splitting surface of the</u> beam-splitter block is configured to split at least one first beam of said plurality of radiation beams into a first measuring beam and a first reference beam, said first reference beam only being reflected by one or more first reference mirrors located in a fixed position with respect to said beam-splitter block, said first measuring beam being reflected by a first measuring mirror area of said plurality of measuring mirror areas, and

wherein said <u>beam-splitting surface of the</u> beam-splitter block is configured to split at least one second beam of said plurality of radiation beams into a second measuring beam and a second reference beam, said second measuring beam being reflected by a second measuring mirror area of said plurality of measuring mirror areas, and said second reference beam being reflected by a first reflector that is fixedly positioned with respect to said beam-splitter block and by at least one third mirror area, which is movable with respect to said beam-splitter block, and

wherein, in use, the second reference beam associated with the at least one second beam exits the first reflector in a direction substantially orthogonal to the direction of the first reference beam associated with the at least one first beam exits the beam-splitter block and away from the beam-splitter block.

4. (*Original*): The interferometer system of claim 3, wherein said at least one third mirror area comprises a third measuring mirror area fixed to said object.

5. (*Original*): The interferometer system of claim 3, wherein said at least one third mirror area comprises a second reflector fixed to said object and a second reference mirror area located in a fixed position with respect to said beam-splitter block, wherein said second reflector is arranged to direct said second reference beam towards said second reference mirror area.

6. (*Original*): The interferometer system of claim 3, wherein at least one third mirror area comprises a fourth mirror area which is fixed to a second object, which is movable with respect to the beam-splitter block.

7. (*Original*): The interferometer system of claim 3, wherein said plurality of radiation beams comprises at least three first radiation beams occupying more than one plane and at least one second radiation beam in a position between two of said at least three first radiation beams.

8. (*Previously Presented*): The interferometer system of claim 3, wherein said plurality of radiation beams comprises at least three first radiation beams arranged to occupy a polygonal volume and at least one second radiation beam arranged to be in a position outside the polygonal volume.

9. (*Previously Presented*): The interferometer system of claim 3, wherein said beam-splitter block comprises a transparent body having a beam-splitting surface and the first reflector is integrally connected to said transparent body and has a reflective surface that extends substantially parallel to the beam-splitting surface.

10. (*Currently Amended*): A lithographic apparatus comprising:

an illumination system configured to provide a beam of radiation;

a pattern support configured to support a patterning device that serves to impart said beam of radiation with a pattern in its cross-section;

a substrate support configured to hold a substrate;

a projection system configured to project said patterned beam onto a target portion of the substrate; and

an interferometer system configured to measure displacement of one of the supports, wherein said interferometer system comprises,

a plane mirror interferometer system;

a differential plane mirror interferometer system;

a ~~beam-splitter block containing one~~ beam-splitter~~, at least one mirror, and at least one retro-reflector, such that said beam splitter block is~~ configured to split a beam associated with

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said plane mirror interferometer system and a beam associated with said differential plane mirror interferometer system into respective measuring beams and respective reference beams;

at least one measuring mirror fixedly connected to said one of the supports and comprising a plurality of measuring mirror areas;

at least one reference mirror comprising one or more reference mirror areas, and

wherein, in use, a direction of propagation of the reference beam associated with the differential plane mirror interferometer system just before incidence on a reference mirror is in a direction substantially orthogonal to the direction of the reference beam associated with the plane mirror interferometer just before incidence on a reference mirror and away from the beam-splitter ~~block~~.

11. (*Currently Amended*): A lithographic apparatus comprising:

an illumination system configured to provide a beam of radiation;

a pattern support configured to support a patterning device that serves to impart said beam of radiation with a pattern in its cross-section;

a substrate support configured to hold a substrate;

a projection system configured to project said patterned beam onto a target portion of the substrate; and

an interferometer system configured to measure displacement of one of the supports, wherein said interferometer system comprises,

at least one measuring mirror fixedly connected to the one of the supports, said at least one measuring mirror comprising a plurality of measuring mirror areas;

at least one reference mirror comprising one or more reference mirror areas that are configured to prevent beams from passing through said reference mirror;

a beam generator configured to generate a plurality of beams, said beam generator comprising a beam-splitter block having a beam-splitting surface; and

a plurality of radiation-sensitive detectors configured to convert radiation beams reflected towards said detectors into electric measuring signals,

wherein said <u>beam-splitting surface of the</u> beam-splitter block is configured to split at least one first beam of said plurality of radiation beams into a first measuring beam and a first reference beam, said first reference beam only being reflected by one or more first reference

mirrors located in a fixed position with respect to said beam-splitter block, said first measuring beam being reflected by a first measuring mirror area of said plurality of measuring mirror areas,

wherein said <u>beam-splitting surface of the</u> beam-splitter block is configured to split at least one second beam of said plurality of radiation beams into a second measuring beam and a second reference beam, said second measuring beam being reflected by a second measuring mirror area of said plurality of measuring mirror areas, and said second reference beam being reflected by a first reflector that is fixedly positioned with respect to said beam-splitter block and by at least one third mirror area, which is movable with respect to said beam-splitter block, and

wherein, in use, the second reference beam associated with the at least one second beam exits the first reflector in direction substantially orthogonal to the direction the first reference beam associated with the at least one first beam exits the beam-splitter block and away from the beam-splitter block.

12. (*Previously Presented*): The lithographic apparatus of claim 11, wherein said at least one third mirror area comprises a third measuring mirror area fixed to said one of the supports.

13. (*Previously Presented*): The lithographic apparatus of claim 11, wherein said at least one third mirror area comprises a second reflector fixed to said one of the supports and a second reference mirror area located in a fixed position with respect to said beam-splitter block, wherein said second reflector is arranged to direct said second reference beam towards said second reference mirror area.

14. (*Previously Presented*): The lithographic apparatus of claim 11, wherein at least one third mirror area comprises a fourth mirror area which is fixed to a second object, which is movable with respect to the beam-splitter block.

15. (*Previously Presented*): The lithographic apparatus of claim 11, wherein said plurality of radiation beams comprises at least three radiation beams occupying more than one

plane and at least one second radiation beam in a position between two of said at least three first radiation beams.

16. (*Previously Presented*): The lithographic apparatus of claim 11, wherein said plurality of radiation beams comprises at least three first radiation beams arranged to occupy a polygonal volume and at least one second radiation beam arranged to be in a position outside the polygonal volume.

17. (*Previously Presented*): The lithographic apparatus of claim 11, wherein said beam-splitter block comprises a transparent body having a beam-splitting surface and the first reflector is integrally connected to said transparent body and has a reflective surface that extends substantially parallel to the beam-splitting surface.

18. (*Currently Amended*): A device manufacturing method comprising:

providing a beam of radiation using an illumination system;

using a patterning device to impart the beam of radiation with a pattern in its cross-section, the patterning device supported by a pattern support;

projecting said patterned beam of radiation onto a target portion of a substrate, the substrate held by a substrate support; and

determining a position of one of the supports with an interferometer system, the determining including:

splitting at least a first beam of a plurality of beams, ~~via~~ using a beam-splitting surface of a beam-splitter block, into a first measuring beam and a first reference beam, said first reference beam only being reflected by one or more first reference mirrors located in a fixed position with respect to said beam-splitter block, said first measuring beam being reflected by a first measuring mirror area of a plurality of measuring mirror areas, the plurality of measuring mirror areas part of at least one measuring mirror fixedly connected to the one of the supports, and

splitting at least a second beam of said plurality of beams, ~~via~~ using the beam-splitting surface of said beam-splitter block, into a second measuring beam and a second reference beam, said second measuring beam being reflected by a second measuring mirror area of said plurality of measuring mirror areas, and said second reference beam being

reflected by a first reflector that is fixedly positioned with respect to said beam-splitter block and by at least one third mirror area, which is movable with respect to said beam-splitter block, and said second reference beam being reflected in a substantially orthogonal direction with respect to the first reference beam by the first reflector and away from the beam-splitter block, and

converting beams which are reflected towards detectors into electric measuring signals.

19. (*Previously Presented*): The method of claim 18, wherein said at least one third mirror area of said interferometer system comprises a third measuring mirror area fixed to said one of the supports.

20. (*Previously Presented*): The method of claim 18, wherein said at least one third mirror area of said interferometer system comprises a second reflector fixed to said one of the supports and a second reference mirror area located in a fixed position with respect to said beam-splitter block, wherein said second reflector is arranged to direct said second reference beam towards said second reference mirror area.

21. (*Previously Presented*): The method of claim 18, wherein said at least one third mirror area of said interferometer system comprises a fourth mirror area which is fixed to a second object which is movable with respect to the beam-splitter block.

22. (*Original*): The method of claim 18, wherein said plurality of beams of said interferometer system comprises at least three first radiation beams occupying more than one plane and at least one second radiation beam in a position between two of said at least three first radiation beams.

23. (*Previously Presented*): The method of claim 18, wherein said plurality of beams comprises at least three first radiation beams arranged to occupy a polygonal volume and at least one second radiation beam arranged to be in a position outside the polygonal volume.

24. *(Previously Presented)*: The method of claim 18, wherein said beam-splitter block of said interferometer system comprises a transparent body having a beam-splitting surface and the first reflector is integrally connected to said transparent body and has a reflective surface that extends substantially parallel to the beam-splitting surface.